

宗有成

中国 沈阳 | zongyc@mails.neu.edu.cn

26 | 东北大学(中国)

本人主要研究人工智能与大模型在复杂行业场景中的应用, 关注工业过程建模、多模态感知、分析与决策支持。我重视垂类工业问题, 擅长从真实问题中抽象任务、连接数据与模型, 推动研究结果落地, 并把方法做成可验证、可部署的系统。更多信息见个人主页。

教育经历

2024.09-至今	东北大学(中国)·信息科学与工程学院 控制科学与工程(A+)·博士研究生
2021.09-2024.06	安徽工业大学·冶金工程学院 材料与化工·硕士
2017.09-2021.06	安徽工业大学·电气与信息工程学院 自动化·学士

项目经历

2026.02-至今	负责人 @ 湘雅二医院口腔黏膜皮肤镜多模态大模型虚拟医生 › 搭建面向真实诊疗场景的多模态大模型 Agent 工作流, 将皮肤镜影像、患者报告与医学知识接入统一流程, 支撑口腔黏膜疾病分析、推理与虚拟医生辅助诊断。
2025.03-2026.03	负责人 @ 宝武资源某矿业浓密脱水数字孪生大模型 › 构建浓密脱水数字孪生大模型工作流, 打通现场信号、工况识别、RAG 知识库、Text2SQL 与工具调用, 形成面向一线生产的感知决策软件。
2024.09-2025.12	成员 @ 某国家重点研发计划 › 参与研发 5G 选冶过程终点预测模块, 打通工业数据接入、在线状态估计与 Web 看板联动, 支撑选冶过程状态监测和终点判断。
2023.03-2023.06	负责人 @ 宝武马钢 LF 炉内视觉感知与节能控制项目 › LF 炉视觉感知与节能控制落地, 将现场感知、组网数据与模型预测连接到控制逻辑和生产软件, 服务真实炉前生产场景。
2022.03-2022.12	负责人 @ 宝武长钢炼铁厂出铁流程智能化改造项目 › 出铁流程智能化改造, 打通液位感知、数据通信、算法服务和软件平台, 完成出铁流程数字孪生场景构建与部署。

学术成果

- LLM-Guided Task-Semantic Field Factorization for Industrial Process Forecasting.
  IEEE Transactions on Industrial Informatics (TII), 2026(已录用); IF 9.8; CCF-C; JCR Q1; 中科院 1 区; 一作。
- Open-Ended Scenario Reasoning for Specialist Model Adaptation.
  IEEE Transactions on Automation Science and Engineering (TASE), 2026; IF 7.9; JCR Q1; 中科院 2 区; 一作。

- LLM-driven human-AI collaborative decision support system for complex industrial processes: A case study in metallurgy.
  Neural Networks (NN), 2026; IF 7.2; CCF-B; JCR Q1; 中科院 2 区; 一作。
- A meta-contrastive learning hybrid model for adaptive temperature trend prediction in variable ladle preheating.
  Engineering Applications of Artificial Intelligence (EAAI), 2025; IF 9.0; CCF-C; JCR Q1; 中科院 1 区; 一作。
- Hybrid grid search and Bayesian optimization-based random forest regression for predicting material compression pressure in manufacturing processes.
  Engineering Applications of Artificial Intelligence (EAAI), 2025; IF 9.0; CCF-C; JCR Q1; 中科院 1 区; 一作。
- Zero-shot capillary segmentation in dermoscopy images via SAM2: A case study on oral mucosa.
  IEEE Journal of Biomedical and Health Informatics (JBHI), 2025; IF 7.7; CCF-C; JCR Q1; 中科院 1 区; 通讯, 共同一作。
- Iron-tapping state recognition of blast furnace based on Bi-GRU composite model and post-processing classifier.
  IEEE Sensors Journal (ISJ), 2023; IF 4.5; JCR Q1; 中科院 2 区; 一作。
- Judgment of blast furnace iron-tapping status based on data differential processing and dynamic window analysis algorithm.
  Progress in Natural Science: Materials International (PNSMI), 2023; IF 7.4; JCR Q1; 中科院 2 区; 一作。
- Influence of heavy reduction during solidification process of billets based on 3D reconstruction of dendrites.
  Journal of Iron and Steel Research International (JISRI), 2025; IF 4.0; JCR Q1; 中科院 2 区; 二作。
- Investigation of the Mechanism of Central Crack Formation During the Solidification and Reduction Process of GCr15 Bearing Steel.
  Metallurgical and Materials Transactions B, 2025; IF 3.3; JCR Q2; 中科院 3 区; 三作。

外审中

- LLM-Guided Measurement Credibility Correction for Trustworthy Industrial Process Inference.
  IEEE Transactions on Industrial Informatics (TII); IF 9.8; CCF-C; JCR Q1; 中科院 1 区; 一作。
- Operational Decisions in Industrial Processes via LLM-Guided Contextual Action Evaluation.
  IEEE Transactions on Automation Science and Engineering (TASE); IF 7.9; JCR Q1; 中科院 2 区; 一作。
- Slender Structure Segmentation via Bottleneck-Aware Reachability Learning.
  IEEE Transactions on Multimedia (TMM); IF 9.9; CCF-A; JCR Q1; 中科院 1 区; 一作。

学术兼职

- Engineering Applications of Artificial Intelligence (EAAI) 审稿人; IF 9.0; CCF-C; JCR Q1; 中科院 1 区。
- Knowledge-Based Systems (KBS) 审稿人; IF 8.0; CCF-C; JCR Q1; 中科院 1 区。
- Expert Systems with Applications (ESWA) 审稿人; IF 9.4; CCF-C; JCR Q1; 中科院 1 区。
- Reliability Engineering & System Safety (RESS) 审稿人; IF 13.7; JCR Q1; 中科院 1 区。
- Scientific Reports 审稿人; IF 4.9; JCR Q1; 中科院 3 区。
- Progress in Additive Manufacturing 审稿人; IF 5.2; ESCI; JCR Q2; 中科院 3 区。

专利软著

- 发明专利, 第一发明人, 一种高炉铁水包出铁状态的判断方法, CN116678473B
- 发明专利, 第一发明人, 一种高性能材料压缩过程的压力预测方法及系统, CN118506935A
- 发明专利, 第三发明人, 一种连铸轻压下过程压下量及压力值同频检测装置与方法, CN118533227A
- 实用新型专利, 第一发明人, 一种基于移动 APP 的家禽孵化智能温湿度调节系统, CN216486166U
- 软件著作权, 第一著作权人, 智能废钢配料系统、团队智慧平台、冶金智能化数据管理系统等 10 项

技能和语言

- 语言能力：CET 6。
- 编程语言：Python、Java、JavaScript、C++。
- 技 术 栈：PyTorch、LangChain、RAG、Agent、Workflow、Harness。



Youcheng Zong

Shenyang, China
zongyc@mails.neu.edu.cn
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Northeastern University (China)

My research focuses on AI and large-model applications in complex industrial scenarios, with interests in industrial process modeling, multimodal perception, analysis, and decision support. I am strong at abstracting tasks from real problems, connecting data with models, and turning research results into verifiable, deployable systems. More information is available on my homepage.

Education

2024.09-Present	Northeastern University (China), College of Information Science and Engineering Control Science and Engineering (A+), PhD Candidate
2021.09-2024.06	Anhui University of Technology, School of Metallurgical Engineering Materials and Chemical Engineering, Master of Engineering
2017.09-2021.06	Anhui University of Technology, School of Electrical and Information Engineering Automation, Bachelor of Engineering

Project Experience

2026.02-Present — Project Lead @ Multimodal large-model virtual doctor for oral mucosal dermoscopy at Xiangya Second Hospital

- Built a multimodal large-model Agent workflow for real clinical scenarios. It integrates dermoscopy images, patient reports, and medical knowledge into one process to support oral mucosal disease analysis, reasoning, and virtual-doctor-assisted diagnosis.

2025.03-2026.03 — Project Lead @ Digital-twin large model for thickening-dewatering in a Baowu Resources mining project

- Built a thickening-dewatering digital-twin large-model workflow. It connects field signals, condition recognition, a RAG knowledge base, Text2SQL, and tool calling to form production-facing perception and decision software.

2024.09-2025.12 — Project Member @ National Key Research and Development Program project

- Developed 5G-enabled endpoint-prediction modules for mineral-processing and metallurgical processes. The modules connect industrial data access, online state estimation, and Web dashboards to support process monitoring and endpoint judgment.

2023.03-2023.06 — Project Lead @ LF-furnace visual perception and energy-saving control project for Baowu Magang

- Delivered LF-furnace visual perception and energy-saving control for field production. It connects site perception, networking data, and model prediction with control logic and production software.

2022.03-2022.12 — Project Lead @ Intelligent transformation of the iron-tapping process at Baowu Changgang Ironmaking Plant

- Built an intelligent-transformation workflow for the iron-tapping process. It connects molten-iron level perception, data communication, algorithm services, and software platforms, and completed digital-twin scenario construction and deployment.

Publications

- LLM-Guided Task-Semantic Field Factorization for Industrial Process Forecasting.
  IEEE Transactions on Industrial Informatics (TII), 2026 (Accepted); IF 9.8; CCF-C; JCR Q1; CAS Zone 1; first author.
- Open-Ended Scenario Reasoning for Specialist Model Adaptation.
  IEEE Transactions on Automation Science and Engineering (TASE), 2026; IF 7.9; JCR Q1; CAS Zone 2; first author.
- LLM-driven human-AI collaborative decision support system for complex industrial processes: A case study in metallurgy.
  Neural Networks (NN), 2026; IF 7.2; CCF-B; JCR Q1; CAS Zone 2; first author.
- A meta-contrastive learning hybrid model for adaptive temperature trend prediction in variable ladle preheating.
  Engineering Applications of Artificial Intelligence (EAAI), 2025; IF 9.0; CCF-C; JCR Q1; CAS Zone 1; first author.
- Hybrid grid search and Bayesian optimization-based random forest regression for predicting material compression pressure in manufacturing processes.
  Engineering Applications of Artificial Intelligence (EAAI), 2025; IF 9.0; CCF-C; JCR Q1; CAS Zone 1; first author.
- Zero-shot capillary segmentation in dermoscopy images via SAM2: A case study on oral mucosa.
  IEEE Journal of Biomedical and Health Informatics (JBHI), 2025; IF 7.7; CCF-C; JCR Q1; CAS Zone 1; corresponding author and co-first author.
- Iron-tapping state recognition of blast furnace based on Bi-GRU composite model and post-processing classifier.
  IEEE Sensors Journal (ISJ), 2023; IF 4.5; JCR Q1; CAS Zone 2; first author.
- Judgment of blast furnace iron-tapping status based on data differential processing and dynamic window analysis algorithm.
  Progress in Natural Science: Materials International (PNSMI), 2023; IF 7.4; JCR Q1; CAS Zone 2; first author.
- Influence of heavy reduction during solidification process of billets based on 3D reconstruction of dendrites.
  Journal of Iron and Steel Research International (JISRI), 2025; IF 4.0; JCR Q1; CAS Zone 2; second author.
- Investigation of the Mechanism of Central Crack Formation During the Solidification and Reduction Process of GCr15 Bearing Steel.
  Metallurgical and Materials Transactions B, 2025; IF 3.3; JCR Q2; CAS Zone 3; third author.

Under Review

- LLM-Guided Measurement Credibility Correction for Trustworthy Industrial Process Inference.
  IEEE Transactions on Industrial Informatics (TII); IF 9.8; CCF-C; JCR Q1; CAS Zone 1; first author.
- Operational Decisions in Industrial Processes via LLM-Guided Contextual Action Evaluation.
  IEEE Transactions on Automation Science and Engineering (TASE); IF 7.9; JCR Q1; CAS Zone 2; first author.
- Slender Structure Segmentation via Bottleneck-Aware Reachability Learning.
  IEEE Transactions on Multimedia (TMM); IF 9.9; CCF-A; JCR Q1; CAS Zone 1; first author.

Academic Service

- Reviewer for Engineering Applications of Artificial Intelligence (EAAI); IF 9.0; CCF-C; JCR Q1; CAS Zone 1.
- Reviewer for Knowledge-Based Systems (KBS); IF 8.0; CCF-C; JCR Q1; CAS Zone 1.
- Reviewer for Expert Systems with Applications (ESWA); IF 9.4; CCF-C; JCR Q1; CAS Zone 1.
- Reviewer for Reliability Engineering & System Safety (RESS); IF 13.7; JCR Q1; CAS Zone 1.
- Reviewer for Scientific Reports; IF 4.9; JCR Q1; CAS Zone 3.
- Reviewer for Progress in Additive Manufacturing; IF 5.2; ESCI; JCR Q2; CAS Zone 3.

Patents and Software Copyrights

- Invention patent, first inventor. Blast-furnace hot-metal ladle iron-tapping state judgment method. CN116678473B.
- Invention patent, first inventor. Pressure prediction method and system for high-performance material compression processes. CN118506935A.
- Invention patent, third inventor. Synchronous detection device and method for reduction amount and pressure in continuous-casting soft reduction. CN118533227A.
- Utility model patent, first inventor. Mobile-app-based intelligent temperature and humidity regulation system for poultry incubation. CN216486166U.
- Software copyright, first owner. Ten registered software copyrights, including intelligent scrap batching, team collaboration, and metallurgical intelligent data-management systems.

Skills and Languages

- **Language**: CET-6.
- **Programming Languages**: Python, Java, JavaScript, C++.
- **Technical Stack**: PyTorch, LangChain, RAG, Agent, Workflow, Harness.

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